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OBLON, SPIVAK, MCCLELLAND MAIER & NEUSTADT, L.L.P.
1940 DUKE STREET
ALEXANDRIA, VA 22314

EXAMINER	
NGUYEN, LUONG TRUNG	
ART UNIT	PAPER NUMBER
2622	

NOTIFICATION DATE	DELIVERY MODE
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

patentdocket@oblon.com
oblonpat@oblon.com
jgardner@oblon.com

Office Action Summary	Application No.	Applicant(s)	
	10/730,078	KITAGUCHI ET AL.	
	Examiner	Art Unit	
	LUONG T. NGUYEN	2622	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *31 July 2009*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-11* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-11* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

1. Applicant's arguments with respect to claims 1-11 filed on 7/31/2009 have been considered but are moot in view of the new ground(s) of rejection.

Claim Objections

2. Claims 1-11 are objected to because of the following informalities:

Claim 1 (lines 9-10), "the world coordinate system" should be changed to --a world coordinate system--.

Claim 1 (line 11), "the magnetic sensor" should be changed to --the set of magnetic sensors--.

Claim 3 (lines 3-4), "an X axis, a Y axis and a Z axis of a world coordinate system" should be changed to --the X axis, the Y axis and the Z axis of the world coordinate system--.

Claim 4 (line 3), "an X axis, a Y axis and a Z axis of a world coordinate system" should be changed to --the X axis, the Y axis and the Z axis of the world coordinate system--.

Claim 10 (line 9), "the world coordinate system" should be changed to --a world coordinate system--.

Claim 10 (line 10), "the magnetic sensor" should be changed to --the set of magnetic sensors--.

Claims 2-9 are objected as being dependent from claim 1.

Claim 11 is objected as being dependent from claim 10.

Appropriate correction is required.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 1-5, 10-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yoshihara et al. (US 5,172,233) in view of Kaneko et al. (US 6,600,511) further in view of Kitaguchi et al. (US 6,038,074).

Regarding claim 1, Yoshihara et al. discloses an apparatus for correcting a deviation of an imaging sensor of a digital camera in which an image of an object or a scene is formed on an image plane of the imaging sensor so that the imaging sensor outputs an image signal, comprising a rotation detecting unit (Position Sensitive Detector 52, Figure 8) which detects a quantity of rotation (degree an direction of camera shaking) of the digital camera causing the deviation of the imaging sensor from a reference position (initial position) to occur (column 6, lines 29-32).

Yoshihara et al. fails to specifically disclose the rotation detecting unit including an acceleration sensor provided in the digital camera to output a signal indicative of an acceleration of the digital camera and a set of magnetic sensors provided in the digital camera to output signals indicative of magnetic fields of the digital camera along the X axis, the Y axis, the Z axis

of the world coordinate system, wherein the acceleration sensor and the magnetic sensor are integral with a body of the digital camera.

However, Kaneko et al. discloses a camera which includes a magnetic azimuth sensor 64, a first acceleration sensor 70, a second acceleration 72, a third acceleration sensor 74 (figure 2, column 6, lines 7-67). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the device in Yoshihara et al. by the teaching of Kaneko et al. in order to detect a relative-movement of the camera (column 6, lines 7-8).

Yoshihara et al. and Kaneko et al. fail to specifically a set of magnetic sensors provided in the digital camera to output signals indicative of magnetic fields of the digital camera along the X axis, the Y axis, the Z axis of the world coordinate system. However, Kitaguchi et al. discloses a three-dimensional position measuring apparatus, which includes a portion for detecting rotation angles about the gravity direction 4 comprises magnetism sensors for measuring the magnetic forces along the three orthogonal axes, respectively, figure 1, column 17, line 65 through column 18, line 23). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the device in Yoshihara et al. and Kaneko et al. by the teaching of Kitaguchi et al. in order to provide an apparatus which has the capability of correcting a deviation of an image sensor of a digital camera in a three dimensional coordinate system.

Regarding claim 2, Yoshihara et al. discloses:

a target vector calculating unit (deviation detector 54x and 54y, figure 8) which calculates a target vector, the target vector describing a magnitude and a direction of an inverse movement (Dx and Dy, figure 8) of the imaging sensor (CCD 3, figure 8) needed to reach the reference position and cancel the deviation (the position of the optical axis of the CCD 3 is corrected so as to reduce the position deviation to zero, column 6, lines 35-39);

a translation detecting unit (since Yoshihara et al. discloses the PSD 53 detects degree and direction of camera shaking and have to translate the signals (Y1, Y2, X1 and X2) to X and Y coordinates system components data, a translation detecting unit is inherently included in Yoshihara et al.), connected to the target vector calculating unit, which detects a quantity of translation of the digital camera causing the deviation of the imaging sensor from the reference position to occur;

a translation quantity calculating unit (53x and 53y receive the coordinates system data from PSD 52 and calculate a changes that are signals Cx and Cy, column 4, lines 45-50) which calculates a change of the quantity of translation of the imaging sensor based on the quantity of translation detected by the translation detecting unit, wherein the target vector calculating unit calculates the target vector based on a change of a positional angle of the imaging sensor and on the change of the quantity of translation calculated by the translation quantity calculating unit, and wherein the change of the positional angle of the imaging sensor is calculated based on the quantity of rotation detected by the rotation detecting unit (Figure 8).

Regarding claim 3, Kaneko et al. discloses the rotation detecting unit includes a set of acceleration sensors (first acceleration sensor 70, second acceleration sensor 72, third acceleration sensor 74, figure 2, column 6, lines 7-32; 50-60) provided to output signals indicative of accelerations of the digital camera along an X axis, a Y axis, Z axis of a world coordinate system.

Regarding claim 4, Kaneko et al. discloses the rotation detecting unit includes a set of acceleration sensors (first acceleration sensor 70, second acceleration sensor 72, third acceleration sensor 74, figure 2, column 6, lines 7-32; 50-60) provided to output signals indicative of accelerations of the digital camera along an X axis, a Y axis, Z axis of a world coordinate system, and both the quantity of the rotation of the digital camera and the quantity of the translation of the digital camera are detected based on the output signals of the set of acceleration sensors in common (column 6, lines 7-32; 50-60).

Regarding claim 5, Yoshihara et al. discloses wherein the detection of the quantity of rotation, the calculation of the target vector, and a movement of the imaging sensor are executed within an image acquisition time for a single frame of the image signal as discussed in claim 1. It is well known in the art the standard NTSC video camera system has a frame rate 1/30 second. For this reason, it would have been obvious to see the detection of the quantity of rotation, the calculation target vector and the movement of the imaging sensor are executed less than 1/30 seconds for incorporating with standard NTSC system.

Regarding claims 10-11, claims 10-11 are method claims of apparatus claims 1-2, respectively; therefore, see Examiner's comments regarding claims 1-2.

5. Claims 6-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yoshihara et al. (US 5,172,233) in view of Kaneko et al. (US 6,600,511) and Kitaguchi et al. (US 6,038,074) further in view of Namerikawa et al. (US 6,089,090).

Regarding application claims 6-7, Yoshihara et al., Kaneko et al. and Kitaguchi et al. fail to specifically disclose wherein the quantity of rotation represents a rotation caused by a shaking motion of the digital camera. However, Namerikawa et al. teaches that a gyro sensor, which detects the angular velocity of rotation (quantity of rotation), is used for picture blurring-preventive systems of VTR camera (column 1, lines 5 – 55). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the device in Yoshihara et al., Kaneko et al. and Kitaguchi et al. by the teaching of Namerikawa et al. in order to detect the angular velocity of rotation.

Regarding application claim 8, Yoshihara et al., Kaneko et al. and Kitaguchi et al. fail to specifically disclose wherein the rotation detecting unit comprises a gyro. However, Namerikawa et al. teaches that a gyro sensor, which detects the angular velocity of rotation is used for picture blurring-preventive systems of VTR camera (column 1, lines 5 – 55). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made

to modify the device in Yoshihara et al., Kaneko et al. and Kitaguchi et al. by the teaching of Namerikawa et al. in order to detect the angular velocity of rotation.

6. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Yoshihara et al. (US 5,172,233) in view of Kaneko et al. (US 6,600,511) and Kitaguchi et al. (US 6,038,074) further in view of Hasegawa (US 5,900,927).

Regarding application claim 9, Yoshihara et al., Kaneko et al. and Kitaguchi et al. fail to specifically disclose wherein the translation detecting unit comprises a range finder. However, Hasegawa teaches a range finder is mounted on a camera for measuring the distance to a subject (column 2, lines 20-27). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the device in Yoshihara et al., Kaneko et al. and Kitaguchi et al. by the teaching of Hasegawa in order to measure distance to a subject.

Conclusion

7. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period

will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to LUONG T. NGUYEN whose telephone number is (571) 272-7315. The examiner can normally be reached on 7:30AM - 5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, DAVID L. OMETZ can be reached on (571) 272-7593. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/LUONG T NGUYEN/
Examiner, Art Unit 2622
10/24/09